IN THE CLAIMS:

1.-15. (Canceled)

16. (Currently Amended) A method for detecting structural damage to a filament wound composite pressure vessel, the method comprising:

winding an optical fiber on and adhering it to an exterior surface of the composite pressure vessel;

injecting first and second light signals into an end of the optical fiber at different times;

detecting the first and second light signals at an end of the optical fiber;

comparing the first and second light signals with each other;

injecting a light signal into a first end of the optical fiber;

reflecting the light signal from an opposite second end of the optical fiber; and,

detecting the reflected light signal at the first end of the optical fiber; ~~The method of claim 15, further comprising;~~

providing a two-dimensional map of the optical fiber on the exterior surface of the composite pressure vessel;

detecting a reflected light signal corresponding to a discontinuity in the optical fiber;

measuring the amount of time taken by the reflected light signal to travel from the first end of the fiber to the discontinuity and back to the first end;

computing the distance of the discontinuity from the first end of the optical fiber from the time taken; and,

locating the discontinuity on the map.

17. (Currently Amended) ~~The method of claim 16,~~ A method for detecting structural damage to a filament wound composite pressure vessel, the method comprising:

winding an optical fiber on and adhering it to an exterior surface of the composite pressure vessel;

injecting first and second light signals into an end of the optical fiber at different times;

detecting the first and second light signals at an end of the optical fiber;

comparing the first and second light signals with each other;

injecting a light signal into a first end of the optical fiber;

reflecting the light signal from an opposite second end of the optical fiber; and,

detecting the reflected light signal at the first end of the optical fiber;

providing a two-dimensional map of the optical fiber on the exterior surface of the composite pressure vessel;

detecting a reflected light signal corresponding to a discontinuity in the optical fiber;

measuring the amount of time taken by the reflected light signal to travel from the first end of the fiber to the discontinuity and back to the first end;

computing the distance of the discontinuity from the first end of the optical fiber from the time taken; and,

locating the discontinuity on the map;

wherein the light signal comprises a pulsed light signal.

18.-20. (Canceled)